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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/606,843

06/27/2003

Hideo Yokota

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EXAMINER

SANDERS JR, JOHN R

ART UNIT

PAPER NUMBER

3735

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/606,843

Applicant(s)

YOKOTA ET AL.

Examiner

John R. Sanders

Art Unit

3735

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 6-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 30 June 2006 have been fully considered but they are not persuasive. Applicant asserts that since Sinclair, Kobayashi and Berger do not expressly recite the measurement of the axial length of the eye and the curvature of the eyeground, the prior art fails to render obvious the instant claims. Examiner respectfully disagrees. Means for obtaining information regarding the shape of the eye, including axial length and retinal curvature, are of common knowledge in the art (see cited U.S. Patents to Freese '367 and Hutchinson et al.'018). In fact, the data acquired by the device taught by Kobayashi inherently contains information regarding the curvature of the eyeground, since said device acquires a surface profile of the eyeground. Sinclair expressly discloses developing a three-dimensional model of the eye by texture-mapping images acquired from the eye onto geometric surfaces designed to mimic the surfaces of the eye. At the time of the invention, one of ordinary skill in the art upon perusal of the Sinclair and Kobayashi patents, would have found it obvious that objective measurements of the surfaces and dimensions of the eye would be desirable for providing the basis for the geometrical surfaces upon which the three-dimensional eye model of Sinclair is based, especially given that texture-mapping of images to three-dimensional surfaces is generally known in computer imaging.
2. Examiner's assertions of official notice and/or common knowledge or well-known in the art statements made in the prior Action are hereinafter taken to be admitted prior art because Applicant either failed to traverse the Examiner's assertion of official notice or that the traverse was inadequate. See MPEP § 2144.03 (c). Therefore, Examiner's assertions that "routines for

Art Unit: 3735

texture mapping of two-dimensional images to three-dimensional surfaces are known in the art and include any number of processing routines for calculating relative offsets and coordinate transformations between a planar surface and a three-dimensional surface in order to place said images onto said three-dimensional surface” and that “one of ordinary skill in the art would be apprised that to map a 2-D image to 3-D surface, a positional relationship between the two would necessarily defined and utilized to perform said mapping” [previous Action, ¶ 12] are taken to be admitted prior art.

3. Regarding Applicant’s assertion that the applied references fail to teach an eyeball parameter *g* that represents a positional relationship between the eyeground and the acquired images, Examiner asserts such a parameter is inherent to a texture mapping procedure, since it is taken to be admitted prior art that a positional relationship between the 2-D image and a 3-D surface is necessarily defined and utilized during a texture mapping procedure.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,766,016 to Sinclair et al (“Sinclair”) in view of U.S. Patent No. 5,353,073 to Kobayashi (“Kobayashi”) and U.S. Patent No. 6,454,410 to Berger et al (“Berger”).

Art Unit: 3735

6. Sinclair discloses a surgical simulator for ophthalmic surgery wherein a virtual model of the eye is created to provide a trainee with a simulated image of an eye for a simulated surgical procedure. Sinclair discloses taking photographs of an actual eye, including the retina, and texture mapping said photographs on geometric surfaces to develop the three-dimensional model of the eye (col. 8, lines 33-41).

7. Sinclair does not disclose measuring the eye to determine the geometric surface or taking and mapping multiple images of the retina to form the three-dimensional model.

8. Kobayashi teaches a three-dimensional shape measurement system capable of determining the shape of the fundus of the eye (see abstract, summary).

9. Berger teaches a method of creating a mosaic image of the retina from multiple overlapping images (col. 3, line 57 - col. 5, line 19).

10. At the time of the invention, it would have been obvious to one of ordinary skill in the art, when considering the patents to Sinclair, Kobayashi, and Berger, to modify the virtual eye model of Sinclair to obtain the geometrical surface of the retina via a measurement system in order to have the model surface correspond to the actual shape of the retina, as in Kobayashi, and to modify the texture mapped image of the retina applied to said geometrical surface to be a mosaic of individually acquired images, as in Berger, in order to have a more comprehensive image of the retina for said model.

11. Regarding the limitations of matching images to the eyeground template, routines for texture mapping of two-dimensional images to three-dimensional surfaces are known in the art and include any number of processing routines for calculating relative offsets and coordinate transformations between a planar surface and a three-dimensional surface in order to place said

Art Unit: 3735

images onto said three-dimensional surface. One of ordinary skill in the art would be apprised that to map a 2-D image to 3-D surface, a positional relationship between the two would necessarily defined and utilized to perform said mapping.

### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Andino (U.S. Publication No. 2004/0246440 A1) discloses a mathematical construct of the surfaces of the eye determined from actual measurements of the eye, including axial length (see paragraph 44).

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 3735

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John R. Sanders whose telephone number is (571) 272-4742.

The examiner can normally be reached on M-F 10:00 am to 6:30 pm.

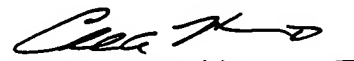
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor II can be reached on (571) 272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



jrs

8 September 2006



Charles A. Marmor, II  
SPE, Art Unit 3735